

The following is a complete listing of all claims in the application, with an indication of the status of each:

**Listing of claims:**

1        1 (Currently amended). An A computer-implemented auction method for holding an  
2 auction for a product comprising the steps of:

3              receiving bids from at least one computer or from multiple computers within a  
4 network of computers, for each product type of multiple product types in a  
5 transaction, that include minimum desired volumes and maximum desired volumes  
6 and evaluation prices for said product;

7              generating, using computing resources, a finite set of bids that include as an  
8 element said bids that were received from said at least one computer or from multiple  
9 computers within said network of computers; and

10             employing dynamic programming using said computing resources to generate,  
11 using said bid set bids that were received in said receiving bids step, a subset of bids  
12 wherein the a maximum gain is obtained within a range represented by the a count of  
13 said product available for sale; and

14             identifying or accepting a bid from said subset of bids.

1        2 (Original). The auction method according to claim 1, wherein said evaluation prices  
2 for said product are represented as a non-linear function relative to the desired volume  
3 of said product type in said transaction.

1        3 (Currently amended). The auction method according to claim 1, further comprising  
2 the steps of:

3              allocating a two-dimensional array V to a memory area by using said dynamic  
4 programming using said computing resources;

5 initializing said two-dimensional array V; and  
6 recursively solving the recursive equation for said two-dimensional array V,  
7 wherein

8  $V(k, j) := \max \{V(k+1, j), V(k, j+1), \max_{l_k \leq n \leq h_k} \{V(k+1, j+x) + e_k(x)\}\}$

9 is used as the recursive equation, where  $V(k, j)$  denotes said two-dimensional array V  
10 populated with said evaluation prices; where k denotes an integer equal to or greater  
11 than 1 and equal to or smaller than n; j denotes an integer equal to or greater than 0  
12 and equal to or smaller than s; n denotes the number of bids; s denotes the number of  
13 products available for the transaction;  $e_k$  denotes the evaluation price when x units of  
14 products are purchased according to the bid  $b_k$ ;  $l_k$  denotes the minimum volume of the  
15 bid  $b_k$ ; and  $h_k$  denotes the maximum volume of the bid  $b_k$ .

1 4 (Original). The auction method according to claim 3, wherein a bid according to  
2 which said product is optimally distributed is selected by back tracking of said  
3 two-dimensional array V from the element on the smallest row and in the smallest  
4 column.

1 5 (Currently amended). The auction method according to claim 1, further comprising:  
2 allocating two-dimensional arrays V and Q to a memory area by using said  
3 dynamic programming;  
4 initializing said two-dimensional arrays V and Q; and  
5 recursively solving recursive equations for said two-dimensional arrays V and  
6 Q using said computing resources,  
7 wherein said evaluation prices for said product represent a linear function  
8 relative to the volumes for said product desired for said transaction, and  
9 wherein

$$V(k, j) := \left\{ \begin{array}{ll} V(k+1, j) \\ V(k, j+1) \\ V(k, j+1) + e_k & \text{if } 1k \leq Q(k, j+1) < h_k \\ V(k+1, j+1_k) + e_k l_k \end{array} \right\}$$

$$10 \quad Q(k, j) := \left\{ \begin{array}{ll} Q(k, j+1) + 1 & (\text{if } V(k, j) = V(k, j+1) + e_k) \\ 1_k & (\text{if } (k, j) = V(k+1, j+1_k) + e_k l_k) \\ Q(k, j+1) & (\text{if } V(k, j) = V(k, j+1)) \\ 0 & (\text{otherwise}) \end{array} \right\}$$

11      is employed as said recursive equation, where V(k, j) denotes said two-dimensional  
12      array V populated with said evaluation prices; where Q (k , j) denotes said two-  
13      dimensional array Q populated with said count of said product available for sale;  
14      where k denotes an integer equal to or greater than 1 and equal to or smaller than n; j  
15      denotes an integer equal to or greater than 0 and equal to or smaller than s; n denotes  
16      the number of bids; s denotes the number of products available for the transaction;  $e_k$   
17      denotes the evaluation price when x units of products are purchased according to the  
18      bid  $b_k$ ;  $l_k$  denotes the minimum volume of the bid  $b_k$ ; and  $h_k$  denotes the maximum  
19      volume of the bid  $b_k$ .

1      6 (Original). The auction method according to claim 5, wherein a bid according to  
2      which said product is optimally distributed is selected by back tracking of said  
3      two-dimensional array V from the element on the smallest row and in the  
4      smallest-column.

1      7-12. Canceled

1       13 (Currently amended). An auction system of computing resources for holding an  
2       auction for a product comprising:

3           means for receiving bids from at least one computer or from multiple  
4       computers within a network of computers, for each product type of multiple product  
5       types in a transaction, that include minimum desired volumes and maximum desired  
6       volumes and evaluation prices for said product;

7           means for generating, using computing resources, a finite set of bids that  
8       include as an element said bids that were received from at least one computer or from  
9       multiple computers within said network of computers; and

10          means for employing dynamic programming using said computing resources  
11       to generate, using said bid set bids that were received from said at least one computer  
12       or from multiple computers within said network of computers, a subset of bids  
13       wherein the a maximum gain is obtained within a range represented by the a count of  
14       said product available for sale; and

15          means for identifying or accepting a bid from said subset of bids.

1       14 (Original). The auction system according to claim 13, wherein said evaluation  
2       prices for said product are represented as a non-linear function relative to the desired  
3       volume of said product type in said transaction.

1       15 (Currently amended). The auction system according to claim 13, further  
2       comprising:

3           means for allocating a two-dimensional array V to a memory area by using  
4       said dynamic programming using said computing resources;

5           means for initializing said two-dimensional array V;

6           and recursively solving the recursive equation for said two-dimensional array  
7       V, wherein

8        $V(k, j) := \max \{V(k+1, j), V(k, j+1), \max_{1 \leq n \leq h_k} \{V(k+1, j+x) + e_k(x)\}\}$

9       is used as the recursive equation, where  $V(k, j)$  denotes said two-dimensional array  $V$   
10      populated with said evaluation prices; where  $Q(k, j)$  denotes said two-dimensional  
11      array  $Q$  populated with said count of said product available for sale; where  $k$  denotes  
12      an integer equal to or greater than 1 and equal to or smaller than  $n$ ;  $j$  denotes an  
13      integer equal to or greater than 0 and equal to or smaller than  $s$ ;  $n$  denotes the number  
14      of bids;  $s$  denotes the number of products available for the transaction;  $e_k$  denotes the  
15      evaluation price when  $x$  units of products are purchased according to the bid  $b_k$ ;  $l_k$   
16      denotes the minimum volume of the bid  $b_k$ ; and  $h_k$  denotes the maximum volume of  
17      the bid  $b_k$ .

1       16 (Original). The auction system according to claim 15, further comprising:  
2           means for selecting a bid according to which said product is optimally  
3           distributed by back tracking of said two-dimensional array  $V$  from the element on the  
4           smallest row and in the smallest column.

1       17 (Currently amended). The auction system according to claim 13, further  
2       comprising:  
3           means for allocating two-dimensional arrays  $V$  and  $Q$  to a memory area by  
4           using said dynamic programming using said computing resources;  
5           means for initializing said two-dimensional arrays  $V$  and  $Q$ ;  
6           and means for recursively solving recursive equations for said  
7       two-dimensional arrays  $V$  and  $Q$ , wherein said evaluation prices for said product  
8       represent a linear function relative to the volumes for said product desired for said  
9       transaction, and  
10       wherein

$$V(k, j) := \begin{cases} V(k+1, j) \\ V(k, j+1) \\ V(k, j+1) + e_k & \text{if } l_k \leq Q(k, j+1) < h_k \\ V(k+1, j+1_k) + e_k l_k \end{cases}$$

$$Q(k, j) := \begin{cases} Q(k, j+1) + 1 & \text{(if } V(k, j) = V(k, j+1) + e_k \\ l_k & \text{(if } (k, j) = V(k+1, j+1_k) + e_k l_k \\ Q(k, j+1) & \text{(if } V(k, j) = V(k, j+1) \\ 0 & \text{(otherwise)} \end{cases}$$

11 is employed as said recursive equation, where  $V(k, j)$  denotes said two-dimensional  
12 array  $V$  populated with said evaluation prices; where  $Q(k, j)$  denotes said two-  
13 dimensional array  $Q$  populated with said count of said product available for sale;  
14 where  $k$  denotes an integer equal to or greater than 1 and equal to or smaller than  $n$ ;  $j$   
15 denotes an integer equal to or greater than 0 and equal to or smaller than  $s$ ;  $n$  denotes  
16 the number of bids;  $s$  denotes the number of products available for the transaction;  $e_k$   
17 denotes the evaluation price when  $x$  units of products are purchased according to the  
18 bid  $b_k$ ;  $l_k$  denotes the minimum volume of the bid  $b_k$ ; and  $h_k$  denotes the maximum  
19 volume of the bid  $b_k$ .

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1 18 (Original). The auction system according to claim 17, wherein a bid according to  
2 which said product is optimally distributed is selected by back tracking of said

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3       two-dimensional array V from the element on the smallest row and in the smallest  
4       column.

1       19-24. Canceled

1       25 (Currently amended). A computer-readable storage medium on which a program  
2       for holding an auction for a product is stored, said program permitting enabling a  
3       computer computing resources to perform:

4            a function process for receiving bids from at least one computer or from  
5       multiple computers within a network of computers, for each product type of multiple  
6       product types in a transaction, that include minimum desired volumes and maximum  
7       desired volumes and evaluation prices for said product;

8            a function process for generating, using computing resources, a finite set of  
9       bids that include as an element said bids that were received from said at least one  
10      computer or from multiple computers within said network of computers; and

11          a function process for employing dynamic programming using said computing  
12      resources to generate, using said bid set that were received while using said process  
13      for receiving bids, a subset of bids wherein the a maximum gain is obtained within a  
14      range represented by the a count of said product available for sale; and

15          a process for identifying or accepting a bid from said subset of bids.

1       26. Canceled

1       27 (Currently amended). An A computer-implemented auction method for holding an  
2       auction for a product comprising the steps of:

3            receiving bids from at least one computer or from multiple computers within a  
4       network of computers, for each product type of multiple product types in a  
5       transaction, that include a condition concerning said product;

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6           generating, using computing resources, a finite set of bids that include as an  
7        element said bids that were received from said at least one computer or from multiple  
8       computers within said network of computers; and

9           employing dynamic programming using said computing resources to generate,  
10      using said bid set bids that were received in said receiving bids step, a subset of bids  
11      wherein ~~the~~ a maximum gain is obtained within a range represented by ~~the~~ a count of  
12      said product available for sale; and

13       identifying or accepting a bid from said subset of bids.